

CLAIMS

I claim:

1 1. A solar powered heating and cooling system for a vehicle
2 comprising:

3 a duct system mounted on a ceiling of the vehicle;

4 a fan mounted inside of said duct system;

5 a heater mounted inside of said duct system;

6 a first vent mounted at a front end of said duct system away
7 from said fan and said heater for accepting air input from an
8 interior of the vehicle, said duct system extending away from a
9 position of said fan and said heater to a rear of said vehicle;

10 a second and third vent and flap assembly mounted in a
11 section of said extended duct system inside the vehicle for
12 circulating air input from said first vent back into the vehicle
13 interior at said second vent and preventing air from exhausting
14 out the third vent during heating while said flap is in an open
15 position;

16 said third vent being mounted in a rear end of said extended
17 duct system for exhausting air input from said first vent out of
18 said vehicle at said third vent while said flap is in a closed
19 position covering said second vent during cooling;

20 a power controller;

21 a battery coupled to said power controller as a power
22 source;

23 solar power cells coupled to said power controller as a
24 power source;

25 a thermostat coupled to said power controller to sense a
26 temperature of air in the vehicle;
27 a clock/timer coupled to said power controller to
28 activate/deactivate the power controller at predetermined times;
29 a selector switch coupled to said power controller to
30 receive electrical power and electrically coupled to said fan and
31 said heater, said selector switch being configured to select a
32 heating operation by providing power to said fan and said heater
33 and said selector switch being configured to select a cooling
34 operation by providing power to said fan;
35 said selector switch controlling the opening and closing of
36 said flap; and
37 said power controller being configured to regulate power
38 provided to said selector switch.

1 2. A solar powered heating and cooling system for a vehicle
2 as claimed in claim 1, wherein said third vent further includes a
3 flap to passively provide protection for said duct system from
4 rain and dust external to said vehicle.

1 3. A solar powered heating and cooling system for a vehicle
2 as claimed in claim 1, wherein said third vent further includes a
3 flap controlled by said selector switch to open and exhaust
4 interior air during cooling when said flap on said second vent is
5 closed and said flap on said third vent is controlled by said
6 selector switch to close during heating while said flap on said
7 second vent is open.

1 4. A solar powered heating and cooling system for a vehicle
2 as claimed in claim 2, wherein said power controller is
3 configured to select power from one of said battery and said
4 solar power cells and both based on current needed by said fan
5 and said heater during heating or cooling as selected by said
6 selector switch.

1 5. A solar powered heating and cooling system for a vehicle
2 as claimed in claim 3, wherein said power controller is
3 configured to select power from one of said battery and said
4 solar power cells and both based on current needed by said fan
5 and said heater during heating or cooling as selected by said
6 selector switch.

1 6. A solar powered heating and cooling system for a vehicle
2 as claimed in claim 4, wherein said power controller is
3 configured to prevent deep discharge of said battery.

1 7. A solar powered heating and cooling system for a vehicle
2 as claimed in claim 5, wherein said power controller is
3 configured to prevent deep discharge of said battery.

1 8. A solar powered heating and cooling system for a vehicle
2 as claimed in claim 2, wherein said battery is an auxiliary
3 battery that does not provide power to other parts of said
4 vehicle and said power controller is configured to select power
5 from one of said auxiliary battery and said solar power cells and
6 both based on current needed by said fan and said heater during
7 heating or cooling as selected by said selector switch.

1 9. A solar powered heating and cooling system for a vehicle
2 as claimed in claim 3, wherein said battery is an auxiliary
3 battery that does not provide power to other parts of said
4 vehicle and said power controller is configured to select power
5 from one of said auxiliary battery and said solar power cells and
6 both based on current needed by said fan and said heater during
7 heating or cooling as selected by said selector switch.

1 10. A solar powered heating and cooling system for a vehicle
2 as claimed in claim 8, wherein said power controller is
3 configured to prevent deep discharge of said auxiliary battery.

1 11. A solar powered heating and cooling system for a vehicle
2 as claimed in claim 9, wherein said power controller is
3 configured to prevent deep discharge of said auxiliary battery.

1 12. A solar powered heating and cooling system for a vehicle
2 comprising:

3 a duct system mounted on the ceiling of said vehicle;

4 a fan mounted inside of said duct system;

5 a heater mounted inside of said duct system;

6 a first vent mounted at a front most end of said duct system
7 away from said fan and said heater for accepting air input from
8 an interior of said vehicle;

9 said duct system splitting off into two sections extending
10 away from a position of said fan and said heater and going back
11 toward the rear of said vehicle;

12 a second vent and flap assembly in a first of said two
13 sections within said extended duct inside said vehicle and a
14 third vent and flap assembly in a second of said two sections
15 within said extended duct inside said vehicle for circulating air
16 input from said first vent back into said vehicle interior at
17 said second and third vent and while said flaps in said second
18 and third assemblies are in an open position and prevent air from
19 exhausting out a fourth and fifth vent during heating;

20 said fourth vent mounted at a rear most end of said first of
21 said two sections within said extended duct system and said fifth
22 vent mounted at a rear most end of said second of said two
23 sections within said extended duct system for exhausting air
24 input from said first vent out at said fourth and fifth vent of
25 said vehicle while said flaps in said second and third assemblies
26 cover said second and third vent during cooling;

27 a battery coupled to a power controller as a power source;
28 solar power cells coupled to said power controller as a
29 power source;
30 a thermostat coupled to said power controller to sense a
31 temperature of air in the vehicle;
32 a clock/timer coupled to said power controller to
33 activate/deactivate the power controller at predetermined times;
34 a selector switch coupled to said power controller to
35 receive electrical power and coupled to said fan and said heater;
36 said selector switch configured to select a heating
37 operation by providing power to said fan and said heater and said
38 selector switch configured to select a cooling operation by
39 providing power to said fan;
40 said selector switch controlling the opening and closing of
41 said flaps of said second and third assemblies; and
42 said power controller being configured to regulate power
43 provided to said selector switch.

1 13. A solar powered heating and cooling system for a vehicle
2 as claimed in claim 12, wherein said fourth vent includes a flap
3 and said fifth vent includes a flap both controlled by said
4 selector switch to open and exhaust interior air during cooling
5 when said flaps on said second vent and third vents are closed
6 and said flaps on said fourth and fifth vent are controlled by
7 said selector switch to close during heating while said flaps on
8 said second and third vent are open.

1 14. A solar powered heating and cooling system for a vehicle
2 as claimed in claim 12, wherein said fourth and fifth vents each
3 include a flap to passively provide protection for said duct
4 system from rain and dust external to said vehicle.

1 15. A solar powered heating and cooling system for a vehicle
2 as claimed in claim 13, wherein said power controller is
3 configured to select power from one of said battery and said
4 solar power cells and both based on current needed by said fan
5 and said heater during heating or cooling as selected by said
6 selector switch.

1 16. A solar powered heating and cooling system for a vehicle
2 as claimed in claim 14, wherein said power controller is
3 configured to select power from one of said battery and said
4 solar power cells and both based on current needed by said fan
5 and said heater during heating or cooling as selected by said
6 selector switch.

1 17. A solar powered heating and cooling system for a vehicle
2 as claimed in claim 15, wherein said power controller is
3 configured to prevent deep discharge of said battery.

1 18. A solar powered heating and cooling system for a vehicle
2 as claimed in claim 16, wherein said power controller is
3 configured to prevent deep discharge of said battery.

1 19. A solar powered heating and cooling system for a vehicle
2 comprising:

3 a duct system mounted on a ceiling of said vehicle;

4 a fan mounted inside of said duct system;

5 a heater mounted inside of said duct system;

6 a first vent mounted at a front most end of said duct system
7 away from said fan and said heater for accepting air input from
8 an interior of said vehicle;

9 said duct system extending from a position of said fan and
10 said heater to a rear of said vehicle;

11 a second vent and flap assembly mounted in a section of said
12 extended duct system inside said vehicle for circulating air
13 input from said first vent back into said vehicle interior at
14 said second vent and said flap of said second assembly opens and
15 prevents air from exhausting out a third vent during heating;

16 said third vent and flap assembly mounted at a rear most end
17 of said duct system in said extended duct system for exhausting
18 air input from said first vent out of said vehicle through said
19 flap of said third vent while said flap of said second assembly
20 closes and covers said second vent during cooling;

21 a battery coupled to a power controller as a power source;

22 solar power cells coupled to said power controller as a
23 power source;

24 a thermostat coupled to said power controller to sense a
25 temperature of air in the vehicle;

26 a clock/timer coupled to said power controller to
27 activate/deactivate the power controller at predetermined times;
28 a selector switch coupled to said power controller to
29 receive electrical power and coupled to said fan and said heater
30 to select between a heating or a cooling operation;
31 said selector switch controlling an opening and closing of
32 said second and third flaps; and
33 said power controller being configured to regulate power
34 provided to said selector switch.

1 20. A solar powered heating and cooling system for a vehicle
2 as claimed in claim 19, wherein said power controller is
3 configured to select power from one of said battery and said
4 solar power cells and both based on current needed by said fan
5 and said heater during heating or cooling as selected by said
6 selector switch and wherein said power controller is configured
7 to prevent deep discharge of said battery.